

What Is Claimed Is:

1. A system for applying a coating to a medical appliance having accessible patterned surfaces, the system comprising:
 - a processor;
 - an appliance support, the appliance support adapted to hold the medical appliance and to provide direct access for a coating to contact the accessible patterned surfaces of the medical appliance; and
 - a solenoid type fluid dispensing head having an electromagnetically controlled valve, the solenoid type fluid dispensing head moving with respect to the medical appliance, the solenoid type fluid dispensing head in fluid communication with a first source of coating, the solenoid type fluid dispensing head in communication with the processor, the processor containing commands that instruct the solenoid type fluid dispensing head to force coating onto the patterned surfaces of the medical appliance being held by the appliance support in a pattern that correlates with the accessible patterned surfaces of the medical appliance.
2. The system of claim 1 wherein the appliance support is adapted to spin the medical appliance about a longitudinal axis of the medical appliance.
3. The system of claim 1 wherein the solenoid type fluid dispensing head is perpendicular to the surface of the accessible patterned surfaces when coating is forced from the solenoid type fluid dispensing head onto the patterned surfaces.
4. The system of claim 1 further comprising:
 - means for applying an electrostatic charge to at least one of the medical appliance and a nozzle of the solenoid type fluid dispensing head, the electrostatic charge redirecting the coating forced from the solenoid type fluid dispensing head before the coating coats the medical appliance.

5. The system of claim 1 further comprising:
 - a nozzle adapted to direct a stream of coating forced from the solenoid type fluid dispensing head onto the medical appliance;
 - wherein an end of the nozzle is arranged a distance from the medical appliance.
6. The system of claim 5 wherein the diameter of the nozzle is in the range of about 1 micron to about 5 millimeters.
7. The system of claim 1 further comprising:
 - a further solenoid type fluid dispensing head in fluid communication with a second source of coating;
 - wherein the processor contains commands to instruct at least one of the solenoid type fluid dispensing head and the further solenoid type fluid dispensing head to force coating onto specific portions of the accessible patterned surfaces of the medical appliance.
8. The system of claim 7 wherein the processor contains commands to instruct at least one of the solenoid type fluid dispensing head and the further solenoid type fluid dispensing head to force additional layers of coating onto specific portions of the accessible patterned surfaces of the medical appliance to create levels of thickness that vary as a function of position on the medical appliance.
9. The system of claim 8 wherein the solenoid type fluid dispensing head and the further solenoid type fluid dispensing head are in fluid communication with a common nozzle.
10. The system of claim 9 wherein the processor contains commands to instruct the solenoid type fluid dispensing head and the further solenoid type fluid dispensing head to force alternating layers of coating onto the accessible patterned surfaces of the medical appliance, one layer from the first source of coating and a different layer from the second source of coating.

11. The system of claim 10 wherein the additional layers include layers of at least one of varying therapeutic concentrations and different suspension fluids, thereby varying a release rate for the therapeutic after implantation of the medical appliance.
12. The system of claim 1 wherein the coating has a viscosity in the range of about 1 centipoise to about 1500 centipoise.
13. The system of claim 1 wherein the coating includes a therapeutic.
14. The system of claim 1 wherein the coating includes a masking material.
15. The system of claim 1 wherein the coating is chosen from a group consisting of a polymer with a suspended drug, a non-thrombogenic agent, a lubricious material, a non-slippery material, a radioactive agent, or a magnetic signature.
16. The system of claim 1 wherein the coating is a radiopaque agent.
17. The system of claim 1 further comprising a microvision system adapted to at least one of:
 - locate and orient the medical appliance by positioning an identifiable feature of the medical appliance;
 - locate and orient the nozzle of the solenoid type fluid dispensing head by at least one of positioning the nozzle and positioning a test amount of material ejected by the nozzle onto a test surface; and
 - monitor disposition of the coating material onto the accessible patterned surfaces of the medical appliance.
18. The system of claim 1 wherein the processor contains commands to instruct the solenoid type fluid dispensing head to place a unique identifier code onto the medical appliance, the unique identifier code identifying the medical appliance.
19. The system of claim 1 wherein the processor includes:

a memory, the memory storing data that represents a configuration of the accessible patterned surfaces of the medical appliance; and

a control unit, the control unit generating command signals that instruct the solenoid type fluid dispensing head to force coating onto the accessible patterned surfaces of the medical appliance in a pattern that correlates with the accessible patterned surfaces of the medical appliance being held by the appliance support.

20. A method for applying a coating onto a medical appliance having an accessible patterned surface, the method comprising:
 - holding the medical appliance and providing direct access to the accessible surfaces of the medical appliance; and
 - receiving command signals at a solenoid type fluid dispensing head, the command signals including instructions to force coating onto the accessible patterned surfaces of the medical appliance in a pattern that correlates with the accessible patterned surfaces of the medical appliance being held by the appliance support, the solenoid type fluid dispensing head in fluid communication with a first source of coating.
21. The method of claim 20 further comprising spinning the medical appliance about one of its longitudinal axes.
22. The method of claim 20 wherein the solenoid type fluid dispensing head is perpendicular to the surface of the accessible patterned surfaces when coating is forced from the solenoid type fluid dispensing head onto the surfaces.
23. The method of claim 20 further comprising:
 - applying an electrostatic charge to at least one of the medical appliance and a nozzle of the solenoid type fluid dispensing head to redirect the coating forced from the solenoid type fluid dispensing head before the coating touches the medical appliance.
24. The method of claim 20 wherein the command signals instruct at least one of the solenoid type fluid dispensing head and a further solenoid type fluid dispensing head to

force coating onto specific portions of the accessible patterned surfaces of the medical appliance, wherein the further solenoid type fluid dispensing head is in fluid communication with a second source of coating.

25. The method of claim 24 wherein the command signals instruct at least one of the solenoid type fluid dispensing head and the further solenoid type fluid dispensing head to force additional layers of coating onto specific portions of the accessible patterned surfaces of the medical appliance to create levels of thickness that vary as a function of their position on the medical appliance.
26. The method of claim 25 wherein the solenoid type fluid dispensing head and the further solenoid type fluid dispensing head are in fluid communication with a common nozzle.
27. The method of claim 26 further comprising:
forcing alternating layers of coating onto the accessible patterned surfaces of the medical appliance by the solenoid type fluid dispensing head and the further solenoid type fluid dispensing head, one layer from the solenoid type fluid dispensing head and a different layer from the further solenoid type fluid dispensing head.
28. The method of claim 27 wherein the additional layers include layers of at least one of varying therapeutic concentrations and different suspension fluids, thereby varying a release rate for the therapeutic after implantation of the medical appliance.
29. The method of claim 20 wherein the coating includes a therapeutic.
30. The method of claim 20 wherein the coating includes a masking material.
31. The method of claim 20 wherein the coating is chosen from a group consisting of a polymer with a suspended drug, a non-thrombogenic agent, a lubricious material, a non-slippery material, a radioactive agent, or a magnetic signature.

32. The method of claim 20 wherein the coating is a radiopaque agent.
33. The method of claim 20 further comprising at least one of:
- locating and orienting the medical appliance by positioning an identifiable feature of the medical appliance;
 - locating and orienting a nozzle of the solenoid type fluid dispensing head by at least one of positioning the nozzle and positioning a test amount of material ejected by the nozzle onto a test surface; and
 - monitoring disposition of the coating material onto the accessible patterned surfaces of the medical appliance.
34. The method of claim 20 further comprising:
- processing command signals that instruct the solenoid type fluid dispensing head to place a unique identifier code onto the medical appliance, the unique identifier code identifying the medical appliance.
35. The method of claim 20 further comprising:
- storing data that represents the configuration of the accessible patterned surfaces of the medical appliance; and
 - generating command signals that instruct the solenoid type fluid dispensing head to force coating onto the accessible patterned surfaces of the medical appliance in a pattern that correlates with the accessible patterned surfaces of the medical appliance being held by the appliance support.
36. A method for applying a coating to a medical appliance comprising the steps of:
- placing the medical appliance in a supporting device;
 - placing a first therapeutic agent into a first chamber connected to a first solenoid type fluid dispensing head;
 - transporting the first therapeutic agent from the first chamber to the first solenoid type fluid dispensing head;

moving the first solenoid type fluid dispensing head with respect to the medical appliance; and

forcing the first therapeutic agent from the first solenoid type fluid dispensing head onto the medical appliance to form a first coating.

37. The method of claim 36 further comprising:

forcing a second therapeutic agent from a second solenoid type fluid dispensing head onto the medical appliance to form a second coating.

38. The method of claim 37 wherein the moving and forcing are modulated so that the first coating and the second coating each have a thickness that varies as a function of position on the medical appliance.

39. The method of claim 37 wherein at least one of the first coating and the second coating is a masking material.

40. The method of claim 37 wherein at least one of the first coating and the second coating communicate information about the medical appliance.

41. The method of claim 37 wherein at least one of the first therapeutic agent and the second therapeutic agent includes at least one of:

a drug suspended in a polymer, a non-thrombogenic agent, a lubricious material, a non-slippery material, a radioactive agent, and a magnetic material.

42. The method of claim 37 wherein the first solenoid type fluid dispensing head and the second solenoid type fluid dispensing head are in fluid communication with a common nozzle.

43. The method of claim 37 wherein at least one of the first coating and the second coating includes a radiopaque agent.

44. The method of claim 37 wherein at least one of the first coating and the second coating includes a corrosive material that etches the medical appliance.
45. A computer readable medium storing instructions for applying a coating to a medical appliance having accessible patterned surfaces, the instructions when executed comprising:
- instructing a solenoid type fluid dispensing head having an electromagnetically controlled valve to force coating onto the accessible patterned surfaces of the medical appliance in a pattern that correlates with the accessible patterned surfaces of the medical appliance being held by an appliance support.
46. The computer readable medium storing instructions of claim 45, the instructions when executed further comprising at least one of:
- instructing the appliance support holding the medical appliance to move and rotate with respect to the solenoid type fluid dispensing head while the electromagnetically controlled valve forces coating onto the accessible patterned surfaces of the medical appliance in a pattern that correlates with the accessible patterned surfaces of the medical appliance being held by the appliance support; and
 - instructing the solenoid type fluid dispensing head to move with respect to the appliance support while the electromagnetically controlled valve forces coating onto the accessible patterned surfaces of the medical appliance in the pattern that correlates with the accessible patterned surfaces of the medical appliance being held by the appliance support.